SCIENCE (Theory)

Time allowed : 2½ hours   *Maximum Marks : 60*

GENERAL INSTRUCTIONS :

(i)   The question paper comprises of **two** sections, A and B. You are to attempt both the sections.

(ii)   All questions are compulsory.

(iii)   There is no over all choice. However internal choice has been provided in all the three questions of five marks category. Only one option in such question is to be attempted.

(iv)   All questions of section A and all questions of section B are to be attempted separately.

(v)   Question numbers 1 to 4 in section A are one mark questions. These are to be answered in one word or one sentence.

(vi)   Question numbers 5 to 13 are two mark questions, to be answered in about 30 words each.

(vii) Question numbers 14 to 22 are three mark questions to be answered in about 50 words each.

(viii) Question numbers 23 to 25 are five mark questions, to be answered in about 70 words each.

(ix)   Question numbers 26 to 41 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.

SECTION - A

1. How many covalent bonds are there in a molecule of ethane, C_2H_6 ?   1

2. What is Tyndall effect?   1

3. What will happen if we kill all the organisms in one trophic level?   1

4. Why did United Nations act to control the production of chlorofluoro-carbons (CFCs) used in refrigerators?   1

5. (i) How do you calculate the possible valency of an element from the electronic configuration of its atoms?

   (ii) Calculate the valency of an element X whose atomic number is 9.   2

6. How does the electronic configuration of an atom of an element relate to its position in the modern periodic table? Explain with one example.   2

7. State the two laws of reflection of light.   2

8. What is meant by the dispersion of white light? Draw a diagram to show dispersion of white light by the glass prism.   2

9. Explain why the planets do not twinkle but the stars twinkle.   2

10. Write any two differences between binary fission and multiple fission in a tabular form as observed in cells of organisms.   2

11. Explain giving one example of each, the unisexual and the bisexual flowers.   2

12. List any four characteristics of a good fuel.   2

13. What are non-renewable resources of energy? Give two examples of such resources.   2

14. Write one chemical equation to represent each of the following types of reactions of organic substances: 3

    (i) Esterification

    (ii) Saponification

    (iii) Substitution

15. Two elements X and Y belong to group 1 and 2 respectively in the same period of periodic table. Compare them with respect to : 3

    (i) the number of valence electrons in their atoms

    (ii) their valencies

    (iii) metallic character

    (iv) the sizes of their atoms

    (v) the formulae of their oxides

    (vi) the formulae of their chlorides

16. Draw the ray diagram and also state the position, the relative size and the nature of image formed by a concave mirror when the object is placed at the centre of curvature of the mirror. 3

17. Define 'refractive index of a transparent medium'. What is its unit ? Which has a higher refractive index, glass or water ? 3

18. What eye defect is hypermetropia? Describe with a ray diagram how this defect of vision can be corrected by using an appropriate lens. 3

19. (a) List two sexually transmitted diseases in each of the following cases: 3

    (i) Bacterial infections

    (ii) Viral infections

  (b) How may the spread of such diseases be prevented?

20. Explain with examples how the following are evidences in favour of evolution in organisms. 3

    (i) Homologous organs

    (ii) Analogous organs

    (iii) Fossils

21. Explain the terms: 3

    (i) Speciation

    (ii) Natural selection

22. Explain how equal genetic contribution of male and female parents is ensured in the progeny. 3

23. (a) In a tabular form, differentiate between ethanol and ethanoic acid under the following heads:

(i) Physical state

(ii) Taste

(iii) $NaHCO_3$ test

(iv) Ester test

(b) Write a chemical reaction to show the dehydration of ethanol. 5

OR

(a) What is a soap? Why are soaps not suitable for washing clothes when the water is hard?

(b) Explain the action of soap in removing an oily spot from a piece of cloth.

24. (a) If the image formed by a lens is diminished in size and erect, for all positions of the object, what type of lens is it ?

(b) Name the point on the lens through which a ray of light passes undeviated.

(c) An object is placed perpendicular to the principal axis of a convex lens of focal length 20 cm. The distance of the object from the lens is 30 cm. Find (i) the position (ii) the magnification and (iii) the nature of the image formed. 5

OR

(a) One-half of a convex lens is covered with a black paper. Will such a lens produce an image of the complete object? Support your answer with a ray diagram.

(b) An object 5 cm high is held 25 cm away from a converging lens of focal length 10 cm.

(i) Draw the ray diagram.

(ii) Calculate the position and size of the image formed.

(iii) What is the nature of the image ?

206

25. (a) Draw a diagram of the longitudinal section of a flower and label on it sepal, petal, ovary and stigma.

 (b) Write the names of male and female reproductive parts of a flower. 5

OR

 (a) What is fragmentation in organisms? Name a multicellular organism which reproduces by this method.

 (b) What is regeneration in organism? Describe regeneration in Planaria with the help of a suitable diagram.

SECTION B

26. To find the focal length of a concave mirror Rahul focuses a distant object with this mirror. The chosen object should be : 1

 (1) a tree

 (2) a building

 (3) a window

 (4) the sun

27. For finding the focal length of a convex lens by obtaining the image of a distant object, one should use as the object : 1

 (1) a well lit distant tree

 (2) window grill in the class room

 (3) any distant tree

 (4) a lighted candle kept at the other end of the table

28. Mohan obtained a sharp inverted image of a distant tree on the screen placed behind the lens. He then moved the screen and tried to look through the lens in the direction of the object. He would see: 1

 (1) a blurred image on the wall of the laboratory.

 (2) an erect image of the tree on the lens.

 (3) no image as the screen has been removed.

 (4) an inverted image of the tree at the focus of the lens.

207

29. Four students A, B, C and D traced the paths of incident ray and the emergent ray by fixing pins P and Q for incident ray and pins R and S for emergent ray for a ray of light passing through a glass slab.   1
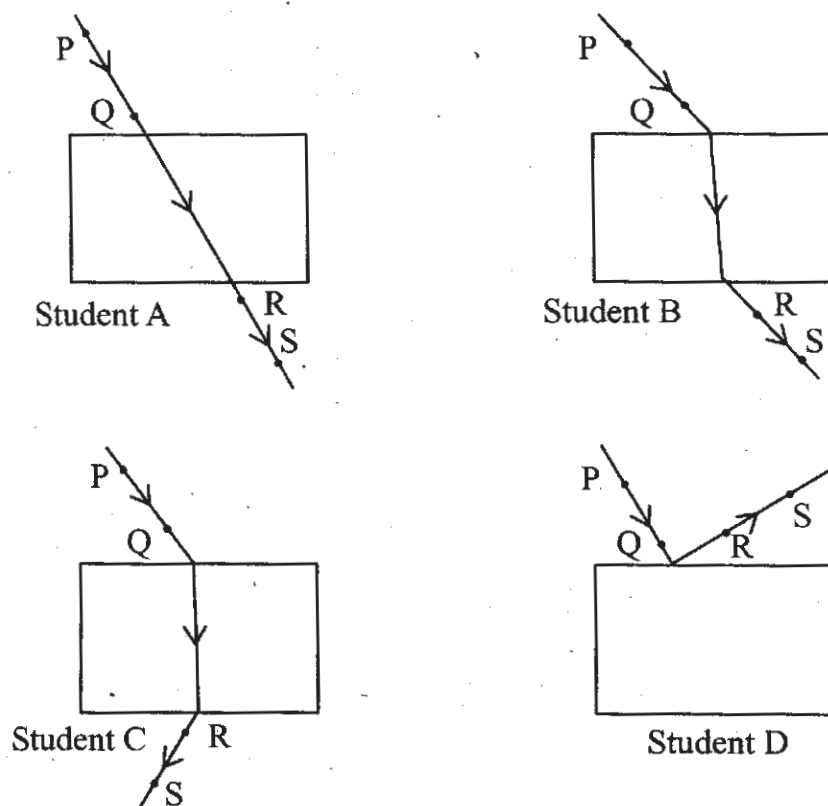
The correct emergent ray was traced by the student:

(1)   A   (2) B

(3)   C   (4) D

30. Rahim recorded the following sets of observations while tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence.

S.No.	Angle of incidence	Angle of refraction	Angle of emergence
I	45°	41°	45°
II	40°	38°	38°
III	45°	41°	40°
IV	41°	45°	41°

The correct observation is recorded at serial number: 1

(1) I

(2) II

(3) III

(4) IV

31. The colour of an aqueous solution of zinc sulphate as observed in the laboratory is : 1

(1) Green

(2) Yellow

(3) Blue

(4) Colourless

32. To show that zinc is a more active metal than copper, the correct procedure is to: 1

(1) add dilute nitric acid on strips of both the metals.

(2) observe transmission of heat through strips of zinc and copper.

(3) prepare solution of zinc sulphate and hang strip of copper into it.

(4) prepare solution of copper sulphate and hang strip of zinc into it.

33. Acetic acid smells like: 1

(1) a banana

(2) vinegar

(3) an orange

(4) a lemon

34. Acetic acid solution turns: 1

(1) blue litmus red

(2). red litmus blue

(3) blue litmus colourless

(4) red litmus colourless

209

35. On adding $NaHCO_3$ to acetic acid, a gas is evolved which turns lime water milky due to the formation of : 1

    (1)   Calcium bicarbonate

    (2)   Calcium hydroxide

    (3)   Calcium carbonate

    (4)   Calcium acetate

36. A yeast cell in which budding occurs was seen to have: 1

    (1)   one bud cell

    (2)   two bud cells

    (3)   three bud cells

    (4)   a chain of bud cells

37. A student was given two permanent slides, one. of binary fission in amoeba and other of budding in yeast. He was asked to identify anyone difference in the nucleus of the two. One such difference, he identified correctly was: 1

    (1)   Presence of one nucleus in. amoeba, two in yeast cell and one in bud.

    (2)   Presence of two nuclei in centrally constricted amoeba, one in yeast cell and one in its bud.

    (3)   Presence of two distant nuclei in amoeba, one in yeast cell and two in bud.

    (4)   Presence of a single nucleus each in amoeba, yeast cell and its attached bud.

38. Binary fission is observed in which one of the following figures? 1

(A)   (B)   (C)   (D)

210
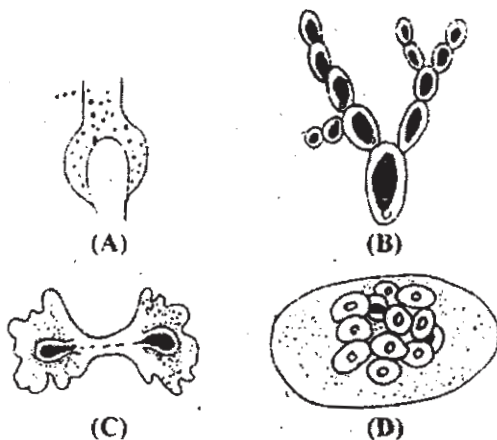
(1)   A

(2)   B

(3)   C

(4)   D

39.   To determine the percentage of water absorbed by raisins, raisins are soaked in water for: 1

(1)   30 seconds

(2)   10 minutes

(3)   2 to 3 hours

(4)   24 hours

40.   Raisins are wiped off gently before final weighing with help of: 1

(l)   a filter paper

(2)   a cotton piece

(3)   a cloth piece

(4)   a polythene piece

41.   The step(s) necessary for determining the percentage of water absorbed by raisins is/are: 1

(1)   Raisins should be completely immersed in water

(2)   Raisins should be soaked in water for sufficient time

(3)   Gently wipe dry the soaked raisins

(4)   All of the above steps

QUESTION PAPER DELHI (CODE NO. 31/1)
SECTION - A

1. Draw the structure for ethanoic acid molecule, CH_3COOH.   1

2. Give an example of a phenomenon where Tyndall effect can be observed.   1

3. What is meant by biological magnification?   1

4. Give an example to illustrate that indiscriminate use of pesticides may result in the
   degradation of the environment.   1

5. How does the valency of elements vary (i) in going down a group, and (ii) in going
   from left to right in a period of the periodic table?   2

6. In the modern periodic table, the element Calcium (atomic number = 20) is surrounded
   by elements with atomic numbers 12, 19, 21 and 38. Which of these elements has
   physical and chemical properties resembling those of Calcium and why?   2

7. State any four characteristics of the image of an object formed by a plane mirror.   2

8. Draw a ray diagram to show the refraction of light through a glass prism. Mark on
   it (a) the incident ray, (b) the emergent ray and (c) the angle of deviation.   2

9. Explain with the help of a diagram, how we are able to observe the sunrise about
   two minutes before the sun gets above the horizon.   2

10. List any four reasons for vegetative propagation being practised in the growth of
    some type of plants.   2

11. Describe the role of fallopian tubes in the female reproductive system.   2

12. List any four disadvantages of using fossil fuels for the production of energy.   2

13. Give two examples each of the following: 2

    (i)   Renewable sources of energy

    (ii)   Non-renewable sources of energy

14. Write chemical equations for what happens when :

    (i)   sodium metal is added to ethanoic acid.

    (ii)   solid sodium carbonate is added to ethanoic acid.

    (iii)   ethanoic acid reacts with a dilute solution of sodium hydroxide.   3

15. The atomic number of an element is 16. Predict :

    (i)   the number of valence electrons in its atom.

    (ii)   its valency.

    (iii)   its group number.

    (iv)   whether it is a metal or a non-metal.

    (v)   the nature of oxide formed by it.

    (vi)   the formula of its chloride.   3

16. An object is placed between infinity and the pole of a convex mirror. Draw a ray
    diagram and also state the position, the relative size and the nature of the image
    formed.   3

17. What is the principle of reversibility of light? Show that the incident ray of light is
    parallel to the emergent ray of light when light falls obliquely on a side of a rectangular
    glass slab.   3

18. What eye defect is myopia? Describe with a neat diagram how this defect of vision
    can be corrected by using a suitable lens.   3

19. What does HIV stand for? Is AIDS an infectious disease? List any four modes of
    spreading AIDS.   3

20. Describe any three ways in which individuals with a particular trait may increase in
    population.   3

21. State the evidence we have for the origin of life from inanimate matter.   3

22. What are fossils? What do they tell us about the process of evolution?   3

23. (a)   State two properties of carbon which lead to a very large number of carbon
           compounds.

213

(b) Why does micelle formation take place when soap is added to water? Why are micelles not formed when soap is added to ethanol? 5

OR

Explain isomerism. State any four characteristics of isomers. Draw the structures of possible isomers of butane, C_4H_{10}. 5

24. (a) What is meant by 'power of a lens' ?

(b) State and define the S.I. unit of power of a lens.

(c) A convex lens of focal length 25 cm and a concave lens of focal length 10 cm are placed in close contact with each other. Calculate the lens power of this combination. 5

OR

(a) Draw a ray diagram to show the formation of image of an object placed between infinity and the optical centre of a concave lens.

(b) A concave lens of focal length 15 cm forms an image 10 cm from the lens. Calculate :

(i) the distance of the object from the lens.

(ii) the magnification for the image formed.

(iii) the nature of the image formed. 5

25. With the help of suitable diagrams, explain the various steps of budding in Hydra. 5

OR

What is binary fission in organisms ? With the help of suitable diagrams, describe the mode of reproduction in Amoeba. 5

SECTION B

26. To find the focal length of a concave mirror, Sita should choose which one of the following set-ups ? 1

(A) A mirror holder and a screen holder

(B) A screen holder and a scale

214

(C)   A mirror holder, a screen holder and a scale

(D)   A screen, a mirror, holders for them and a scale

27.   By using a convex lens, a student obtained a sharp image of his class-room window grill on a screen. In which direction should he move the lens to "focus a distant tree instead of the grill ?   1

(A)   Towards the screen.

(B)   Away from the screen.

(C)   Very far away from the screen.

(D)   Behind the screen.

28.   To determine the focal length of a convex lens by obtaining a sharp image of a distant object, the following steps were suggested which are not in proper sequence:

I.   Hold the lens between the object and the screen.

II.   Adjust the position of the lens to form a sharp image.

III.   Select a suitable distant object.

IV.   Measure the distance between the lens and the screen.

The correct sequence of steps to determine the focal length of the lens is –   1

(A)   III, I, II, IV   (B) III, I, IV, II

(C)   III, IV, II, I   (D) I, II, III, IV

29.   In these diagrams, the angle of refraction r has been correctly marked in which diagram?   1

I   II   III   IV
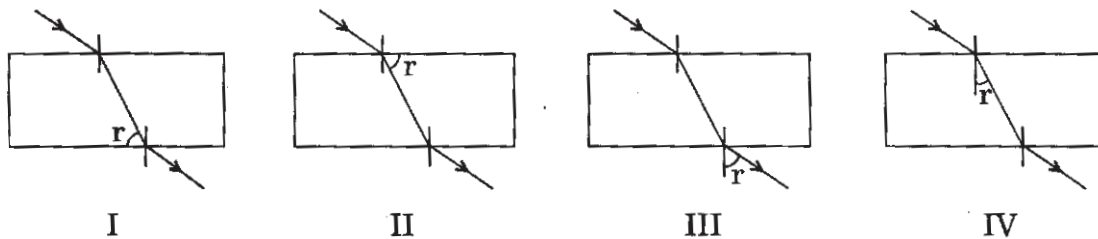
(A) I   (B) II

(C) III   (D) IV

30. For a ray of light passing through a glass slab
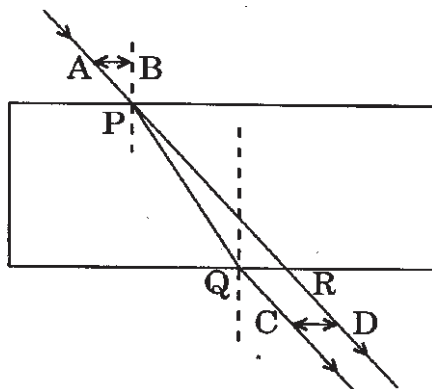
the lateral displacement was correctly measured as 1

(A) AB   (B) PQ

(C) CD   (D) PR

31. Iron nails were dipped in an aqueous solution of copper sulphate. After about 30 minutes, it was observed that the colour of the solution changed from 1

(A) colourless to light green.

(B) blue to light green.

(C) blue to colourless.

(D) green to blue.

32. A cleaned aluminium foil was placed in an aqueous solution of zinc sulphate. When the aluminium foil was taken out of the zinc sulphate solution after 15 minutes, its surface was found to be coated with a silvery grey deposit. From the above observation it can be concluded that 1

(A) aluminium is more reactive than zinc.

(B) zinc is more reactive than aluminium.

(C) zinc and aluminium both are equally reactive.

(D) zinc and aluminium both are non-reactive.

33. Vapours of acetic acid smell 1

(A) pungent like vinegar.

(B) sweet like rose.

(C)   suffocating like sulphur dioxide.

(D)   odourless like water.

34.   Acetic acid reacts with solid sodium hydrogen carbonate   1

(A)   slowly forming no gas.

(B)   vigorously with effervescence.

(C)   slowly without effervescence.

(D)   vigorously without gas formation.

35.   A student added acetic acid to test tubes I, II, III and IV containing the labelled substances and then brought a burning splinter near the mouth of each test tube.

I	II	III	IV
NaOH	NaCl	$NaHCO_3$	$Ca(OH)_2$
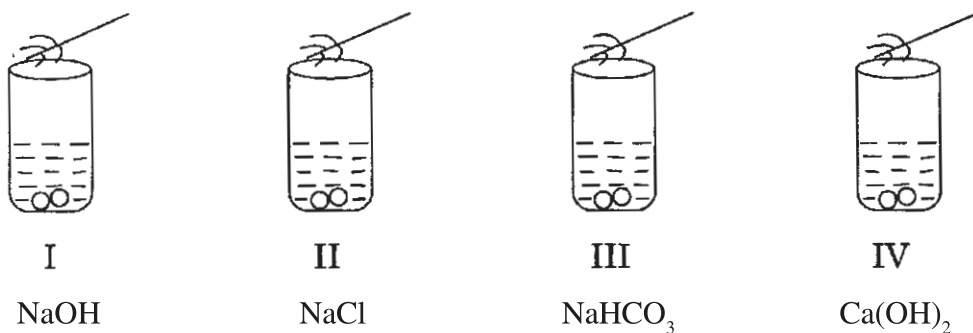
The splinter would be extinguished when brought near the mouth of test tube   1

(A)   I

(B)   II

(C)   III

(D)   IV

36.   The shape of yeast cell is   1

(A)   only spherical.

(B)   only oval.

(C)   irregular.

(D)   both oval and spherical.

37. The steps involved in observing a slide under a microscope are given below. They may not be in proper sequence.

  I.   Focus the object under high power of the microscope.

  II.   Place the slide on the stage of the microscope.

  III. Arrange the mirror to reflect maximum light to the slide.

  IV.   Focus the object under low power of the microscope.

  The proper sequence of steps is   1

  (A)   II, III, IV, I

  (B)   I, II, III, IV

  (C)   IV, III, II, I

  (D)   III, I, II, IV

38. The given figures illustrate binary fission in Amoeba in improper order.
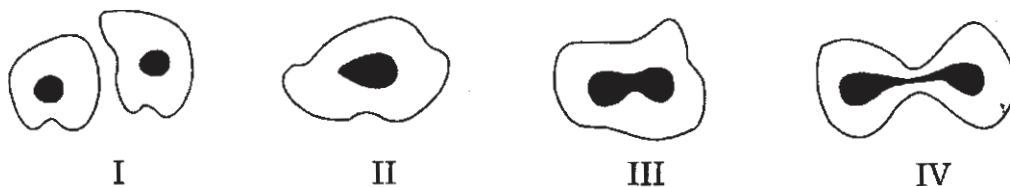
  The correct order is   1

  (A)   III, IV, II, I

  (B)   IV, III, II, I

  (C)   II, III, IV, I

  (D)   I, III, IV, II

39. During the course of an experiment, 'to determine the percentage of water absorbed by raisins', raisins are weighed   1

  (A)   every half an hour.

  (B)   every hour.

  (C)   once - only after completing the experiment.

  (D)   two times - before soaking and after soaking for three hours.

40. The colour of raisins as used in the experiment, 'to determine the percentage of water absorbed by raisins' was   1

    (A)   white

    (B)   yellow

    (C)   dark brown

    (D)   pink

41. Following are the steps involved in the experiment 'to determine the percentage of water absorbed by raisins'. They may not be in proper sequence.

    I.   Soak the raisins in fresh water.

    II.   Weigh dry raisins.

    III.   Weigh soaked raisins.

    IV.   Wipe out soaked raisins.

The correct sequence of steps is

    (A)   I, II, III, IV

    (B)   II, I, IV, III

    (C)   II, I, III, IV

    (D)   I, II, IV, III

SECTION - A

1. How many electrons does a carbon atom need to gain or lose to attain noble gas configuration?   1

2. State the meaning of "vegetative propagation".   1

3. What is meant by heredity?   1

4. State the (i) position and (ii) nature of the image formed when an object is placed between the pole and focus of a concave mirror.   1

5. "Hydrogen occupies a unique position in the Modern Periodic Table." Justify this statement.   2

6. An element X is placed in the 3rd period and 2nd group of the Modern Periodic Table.

    (a) Write electronic configuration of the element X.

    (b) Write the balanced equation of the reaction when this element burns in the presence of air.   2

7. What is meant by sex chromosome? State its two types. Mention the sex chromosomes in male and female of human beings.   2

8. State the meaning of refraction of light when a ray of light travels obliquely from one medium to another. Mention the basic cause of refraction of light.   2

9. In an experiment with a rectangular glass slab a student observed that a ray of light incident at an angle of 55° with the normal on one face of the slab, after refraction, strikes the opposite face of the slab before emerging out into air making an angle of 40° with the normal. Assign the values to the (i) angle of refraction and (ii) angle of emergence. Give justification for assigning these values.   2

10. Suggest a reason for each of the following statements: 2

    (i) The sun appears reddish near the horizon during sunrise.

    (ii) The clear sky appears blue.

11. State a reason for conserving fossil fuels. List any two disadvantages of burning fossil fuels. 2

12. Construct an aquatic food chain showing four trophic levels.

13. "Reuse strategy is better than recycling." Justify this statement giving an example.

14. Write formula of ethanol and ethanoic acid. List two physical and two chemical properties to differentiate ethanol from ethanoic acid. 3

15. In the Modern Periodic Table Ca (20) is surrounded by Mg (12), K (19), Sc (21) and Sr (38) [atomic numbers of the elements are given in parentheses]. Answer the following questions stating the reason in each case: 3

    (i) Which of these elements belong to the same period?

    (ii) Which of the surrounding elements has chemical properties resembling Calcium?

    (iii) Which one of these elements has the largest atomic radius?

16. What is DNA copying? How many copies of DNA are created in a reproducing cell? Why is DNA copying considered an essential part of the process of reproduction? 3

17. What is meant .by asexual reproduction? List two modes each of asexual reproduction used by (i) unicellular organisms, (ii) multicellular organisms. 3

18. At what distance should an object of height 6 cm be placed from a convex lens of focal length 10 cm to obtain an image at 15 cm from it on the other side? Find the size of the image in this case. 3

19. What are fossils? How are fossils formed? Describe in brief the method of determining the age of fossils. 3

20. All "Homo Sapiens" have originated from a common ancestor and yet they show tremendous variation in size, colour and appearance. Explain in brief. 3

21. What is hypermetropia (far-sightedness) ? List two causes for the development of this defect. State in brief how this defect can be corrected using a lens. 3

22. A person cannot see an object beyond 2 m distinctly. Name the defect he is suffering from. What should be the (i) nature, (ii) focal length, and (iii) power of the lens that will correct his vision? 3

23. (a) What is a spherical mirror? State its two types. Define the following terms related to spherical mirrors:

    (i) Pole

    (ii) Centre of curvature

    (iii) Principal axis

    (iv) Principal focus

    (b) A spherical mirror forms a real and inverted image of the same size as the object at a distance of 40 cm from the mirror. Find the (i) focal length and (ii) radius of curvature of the mirror. 5

OR

    (a) When a ray of light passes from medium A to medium B, it bends away from the normal. Which of the two - A or B, is the optically denser medium ?

    (b) How should a ray of light be incident on a rectangular glass slab so that it comes out from the opposite side without suffering any lateral displacement ?

    (c) The focal length of a convex lens is 'f'. How does the size and nature of the image formed by the lens change as the object placed on one side of the lens is brought progressively closer to the focus from a distance which is just greater than 2f ? 5

24. (a) Ethene is formed when ethanol is heated at 443 K with excess of conc. H_2SO_4. State the role of conc. H_2SO_4 in the reaction. Write structural formula of ethene and balanced equation of the reaction.

    (b) What is soap ? A soap is not found effective where water is hard. Why ? Mention the chemical composition of the detergent used to wash clothes with hard water. 5

OR

    (a) Two hydrocarbons A and B have the formula C_3H_6 and C_3H_8 respectively. Which one of the two is

222

> (i)   a saturated compound,
>
> (ii)   an unsaturated compound,
>
> (iii)   most likely to show addition reaction?
>
> Justify your answer of (i), (ii) and (iii).

(b)   With the help of a chemical equation show how an addition reaction is used in vegetable ghee industry. State the common name of this reaction in the industry.   5

25.   List in tabular form any five differences between "sexual reproduction" and "asexual reproduction".

<p align="center">OR</p>

(a)   What is pollination? Mention in brief its two types.

(b)   List in tabular form any two differences between the processes of pollination and fertilisation.   5

<p align="center">SECTION B</p>

26.   While conducting the experiment on tracing the path of a ray of light, through a rectangular glass slab, a student uses the protractor (Dee) for measuring the angles of incidence and of emergence. He should place the "zero" of the protractor at the points of incidence and emergence of the ray on the slab and the base line of the protractor should be along the   1

(A)   face lines of the glass slab at the points of incidence and emergence respectively.

(B)   face line of the glass slab at the point of incidence and the normal at the point of emergence of the ray.

(C)   normals at the points of incidence and emergence respectively.

(D)   normal at the point of incidence and the face line of the glass slab at the point of emergence of the ray.

27.   While tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence, a student measured the angles of refraction and emergence in each case. He recorded his observations in the table as given below:

<p align="center">223</p>

S.No.	Angle of incidence	Angle of refraction	Angle of emergence
1	30°	28°	30°
2	40°	36°	41°
3	50°	40°	52°
4	60°	36°	59°

The correct observation is   1

(A)   1   (B)   2

(C)   3   (D)   4

28.   A student was given the following suggestions by his fellow student for performing the experiment on finding the focal length of a concave mirror.

I.   Select an object very far away from the laboratory window.

II.   Select a well illuminated object far, but not very far, from the laboratory window.

III.   Keep all lights of the laboratory on.

IV.   Place the mirror between the object and the screen.

V.   Place the screen between the object and the mirror.

VI.   Obtain the sharpest image of the object on the screen.

He can perform the experiment better by following the suggestions:

(A)   I, V, VI   (B)   I, III, VI

(C)   II, IV, V   (D)   II, V, VI

29.   In an experiment the image of a distant object formed by a concave mirror is obtained on a screen. To determine the focal length of the concave mirror, the distance to be measured is between   1

(A)   the mirror and the object.

(B)   the object and the screen.

(C)   the mirror and the screen.

(D)   the mirror and the screen and also between the object and the screen.

224

30. A student obtains a blurred image of an object on a screen by using a convex lens. In order to obtain a sharp image, he will have to shift the lens   1

   (A)   slightly towards the screen.

   (B)   slightly away from the screen.

   (C)   slightly either towards or away from the screen depending upon the position of the object.

   (D)   to a position very far away from the screen.

31. Some crystals of copper sulphate were dissolved in water. The colour of the solution obtained would be   1

   (A)   blue   (B)   brown

   (C)   green   (D)   yellow

32. A student put four big iron nails, one each in four test tubes, containing aqueous solutions of aluminium sulphate, zinc sulphate, copper sulphate and ferrous sulphate. After about an hour, a reddish-brown coating was observed only on the surface of one iron nail that was put in the solution of   1

   (A)   aluminium sulphate.

   (B)   zinc sulphate.

   (C)   copper sulphate.

   (D)   ferrous sulphate.

33. To aqueous solutions of $Al_2(SO_4)_3$, $ZnSO_4$, $CuSO_4$ and $FeSO_4$ contained in four different beakers, zinc granules were added. Deposition of metal on zinc will be observed in beakers containing solutions of   1

   (A) $Al_2(SO_4)_3$ and $ZnSO_4$

   (B) $ZnSO_4$ and $FeSO_4$

   (C) $FeSO_4$ and $CuSO_4$

   (D) $CuSO_4$ and $Al_2(SO_4)_3$

225

34. The odour of acetic acid is similar to that of

    (A)   Orange

    (B)   Rose water

    (C)   Ethanol

    (D)   Vinegar

35. When some acetic acid is added to sodium hydrogen carbonate powder in a beaker, a gas is evolved. Which one of the following statements is "Not True" for this gas?   1

    (A)   It turns lime water milky.

    (B)   It extinguishes a burning splinter.

    (C)   It dissolves in water.

    (D)   It burns with a pop sound.

36. In order to adjust the compound microscope for observing binary fission or budding with the help of prepared slides, the following steps are required:

    I.   Place the slide on the stage.

    II.   Focus using low power.

    III. Adjust the mirror and diaphragm so that sufficient amount of light enters into the microscope.

    IV.   Adjust to high power.

    The correct sequence of the above steps is   1

    (A)   III, I, II, IV

    (B)   III, II, I, IV

    (C)   I, III, II, IV

    (D)   I, II, III, IV

37. A slide shows a cell dividing in the centre. This slide could be showing –

    (A)   budding in yeast.

    (B)   budding in amoeba.

    (C)   binary fission in yeast.

    (D)   binary fission in amoeba.

226

38. Upon observing the slides showing stages of reproduction in yeast and amoeba four students, I, II, III and IV, reported their observations as given below:

I. Cytokinesis was seen in the yeast cell.

II. A chain of buds was seen due to reproduction in amoeba.

III. Elongated nucleus was dividing to form two daughter nuclei in amoeba.

IV. Single cells of amoeba and yeast were undergoing binary fission and budding respectively.

The correct observations are that of student(s)

(A) I and II   (B) II only

(C) III and IV   (D) I, III and IV

39. For determining the percentage of water absorbed by raisins in a given time, apart from water, raisins and a watch, we shall also require –

(A) a beaker, a graduated cylinder, a thermometer, a filter paper.

(B) a beaker, a weighing balance, a thermometer, a filter paper.

(C) a graduated cylinder, a thermometer, a weighing balance, a watch glass.

(D) a beaker, a graduated cylinder, a thermometer, a weighing balance.

40. If W_1 represents weight of dry raisins and W_2 represents weight of soaked raisins, then the percentage of water absorbed by raisins is

(A) $\dfrac{W_2 - W_1}{W_1} \times 100$

(B) $\dfrac{W_2 - W_1}{W_2} \times 100$

(C) $\dfrac{W_1 - W_2}{W_1} \times 100$

(D) $\dfrac{W_1 - W_2}{W_2} \times 100$

227

41. A student soaked 15 g of raisins in 40 mL of water in beaker X and 30 g of raisins in 80 mL of water in beaker Y at room temperature. He measured the quantity of water left in the beakers after about an hour. He would observe that   1

    (A)   there is no change in the quantity of water in beakers X and Y.

    (B)   the beaker Y has as much water as in the beaker X.

    (C)   the beaker Y has more water than beaker X.

    (D)   the beaker X has more water than beaker Y.